

“The Value of Building Integrated Photovoltaics”

Photovoltaic Experience Conference UPEX'01

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For Non-Building Integrated

PV installations:

- **Land needs to be purchased**
- **Permits needs to be pulled**
- **Land needs clearing**
- **Mounting structures need to be erected**
- **Electrical lines need to be strung in conduit**
- **Connections to the existing utility are needed**
- **Transformers and switching gear are needed**
- **A fence is needed**
- **Holes needs to be dug**
- **Concrete needs to be poured**



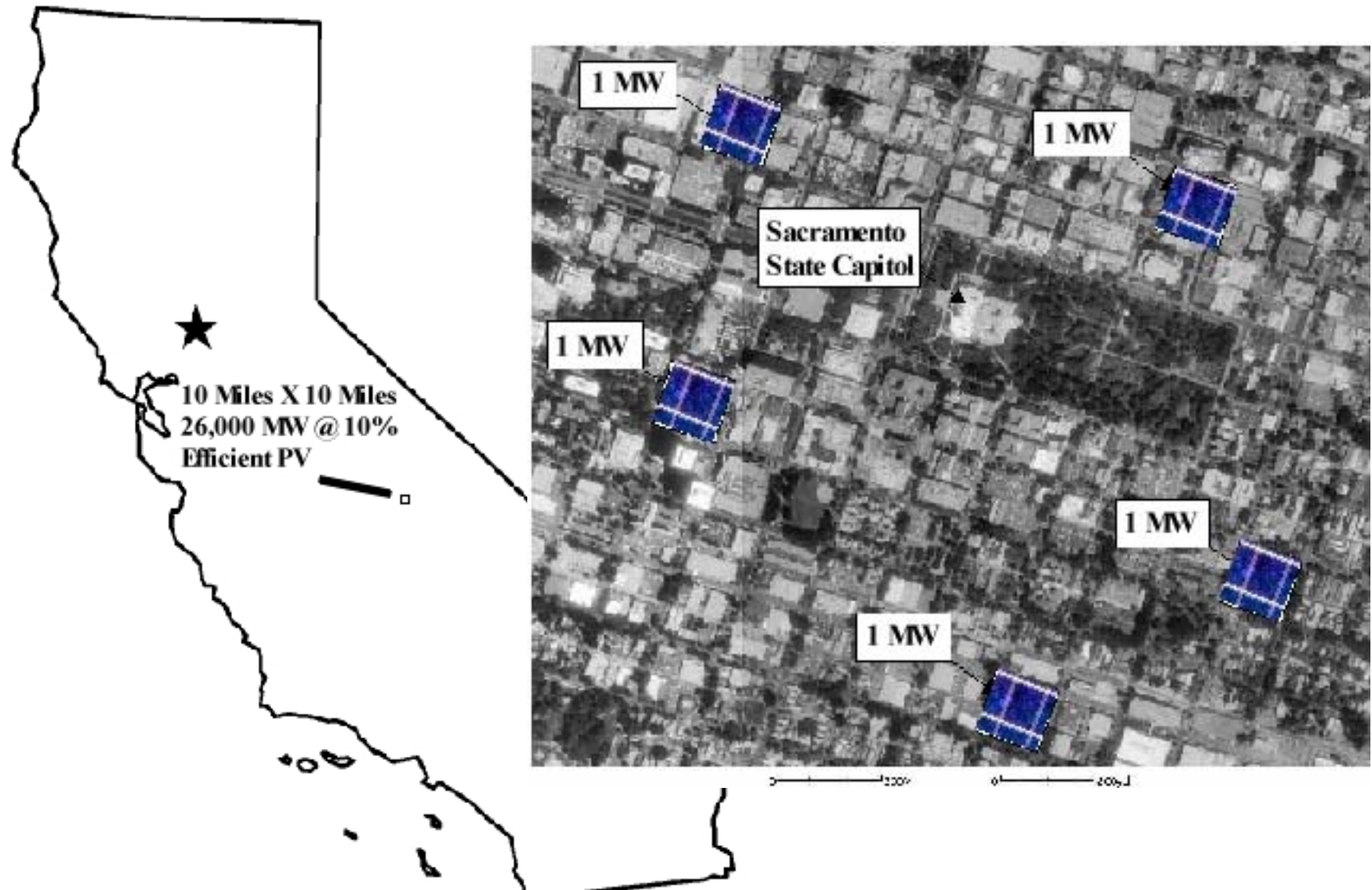
Notice the Photovoltaics isn't even mentioned yet!

BIPV makes economic sense

- With a building you have already:
- Purchased the land
- Paid for permits
- Have electrical equipment
- Don't need a fence around equipment.
- Most importantly, with net metering, you get the retail value of the electricity produced!



DG Potential of PV on Buildings



BIPV System Performance and Economic Estimating

BIPV Designer

The image displays four overlapping screenshots of the BIPV Designer software interface, showing different tabs and data entry fields.

At a Glance Tab: Shows the main project information fields:

- Name: BP-Solarex_Kiosk
- Location: City: BALTIMORE L
- PV Module: Polycrystal
- System Size: 32.0 Sq. meters
- Energy Output: kWh per year:

Building Tab: Shows the building configuration details:

- Name: BP-Solarex_Kiosk
- Orientation: No_Spin
- Surfaces table:

#	name	p/w	lat	hgt	az	tilt	x	y	z
1	east	P	2	2	-90	90	2	4	2
2	south	P	4	2	0	90	2	0	2
3	west	P	2	2	90	90	0	0	2
4	slope	P	4	4	0	45	0	0	4

Location Tab: Shows the location selection options:

- International (selected)
- United States

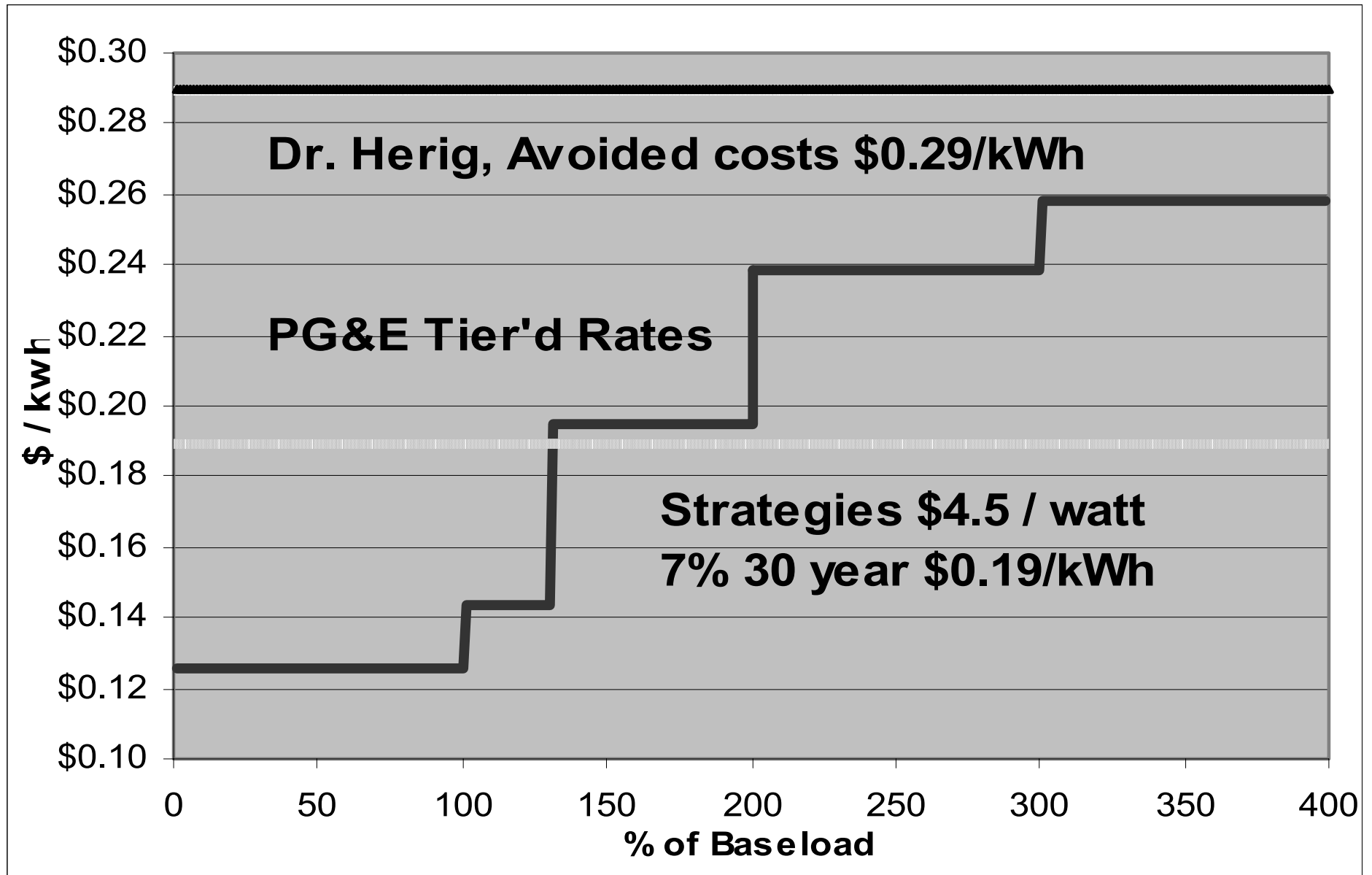
Results Tab: Shows the energy and demand charges section:

- Energy & Demand Charges
- Enter Rates for: ☒ Energy (\$/kwh) ☐ Demand (\$/kw)
- Edit hour for morning 4am till: 5
- Afternoon till: 21 and evening ends at 21:00
- Rates table:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
<input checked="" type="radio"/> Morning	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<input type="radio"/> Afternoon												
<input type="radio"/> Evening												

Shareware at: www.energyi.mccabe.net

Energy Value



Value depends on who you are



Consumer

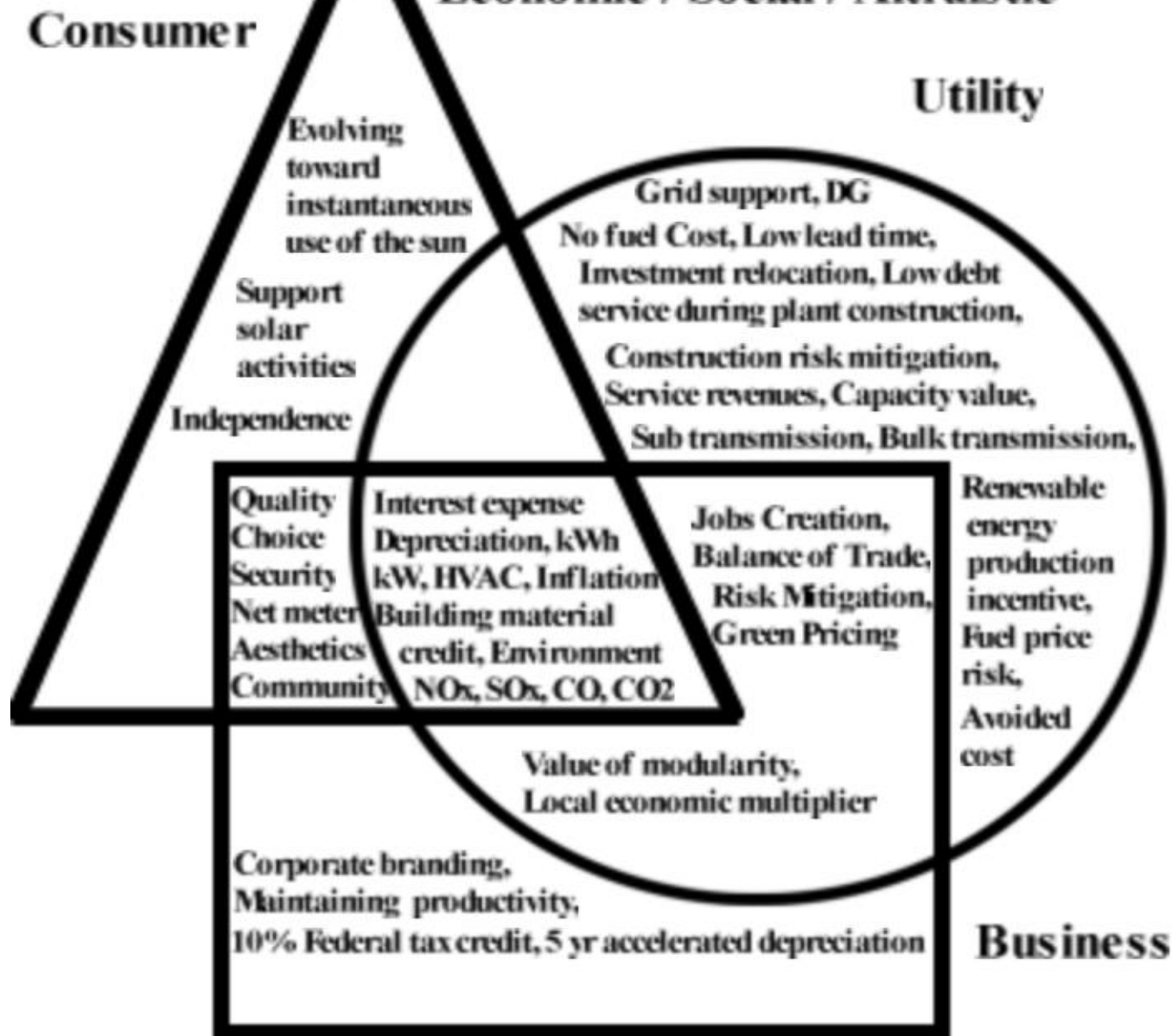


Business

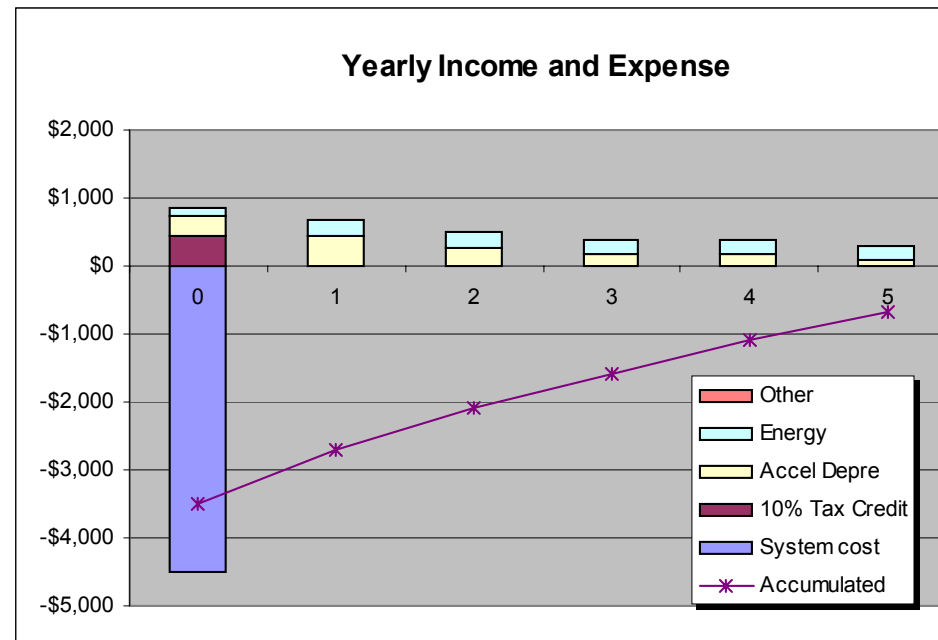
...or a Utility



Value of Building Integrated Photovoltaics Consumer, Business or Utility Economic / Social / Altruistic



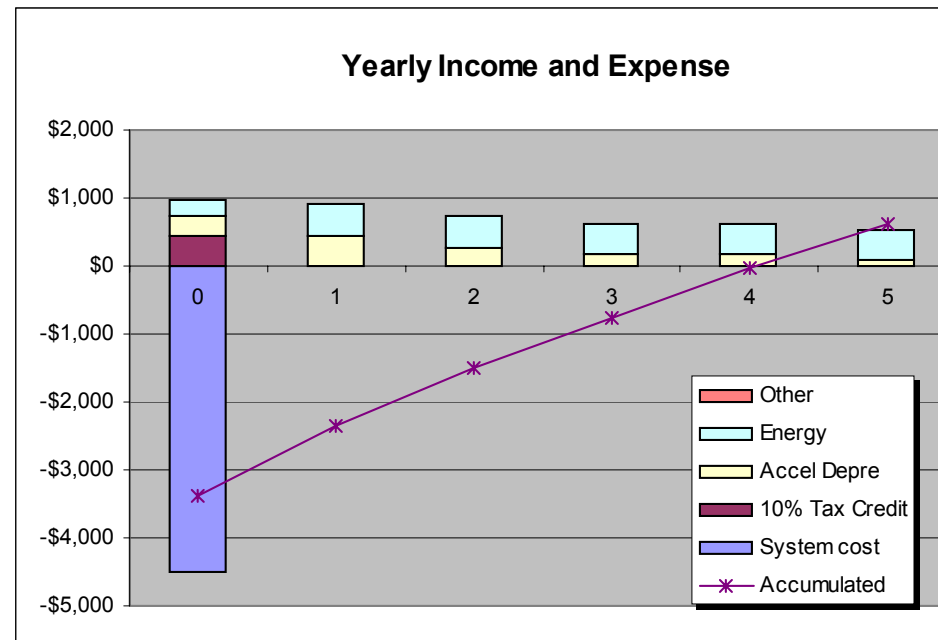
Cost / Value



1 kW system, 1,800 kWh / year, \$4,500 / kW

33 % Tax Bracket, \$0.12 / kWh

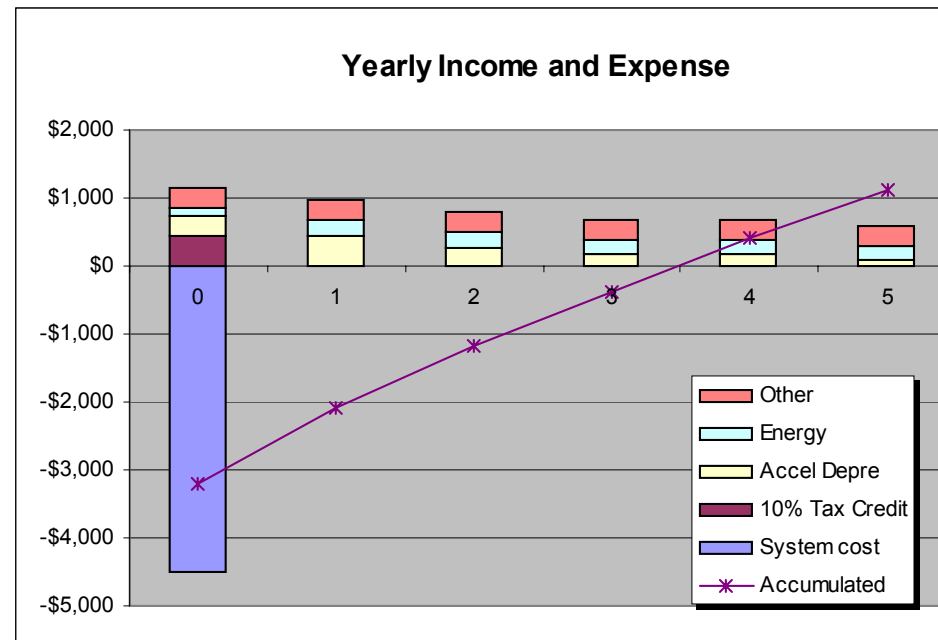
Cost / Value



1 kW system, 1,800 kWh / year, \$4,500 / kW

33 % Tax Bracket, \$0.25 / kWh

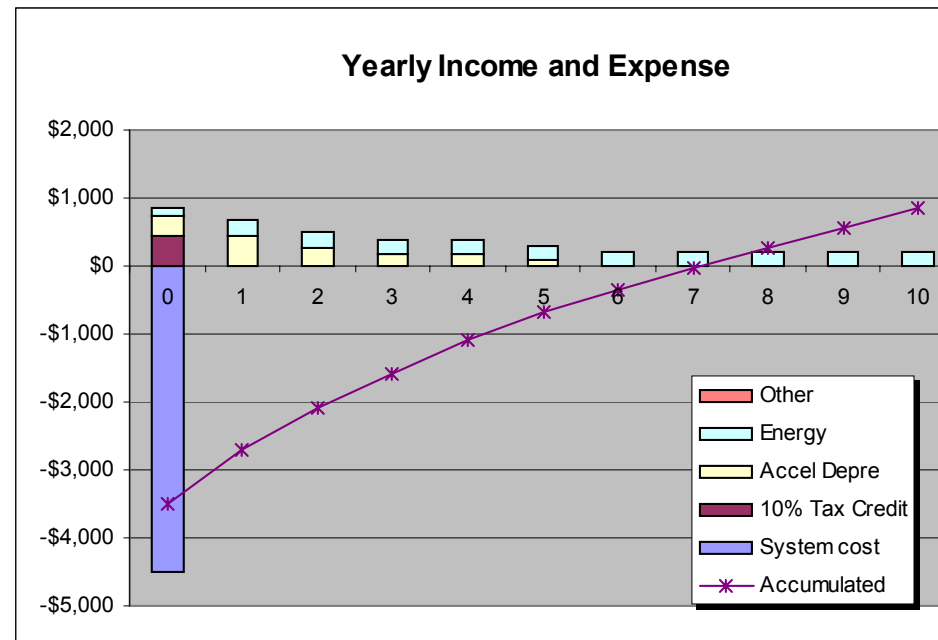
Cost / Value



1 kW system, 1,800 kWh / year, \$4,500 / kW

33 % Tax Bracket, \$0.12 / kWh +\$300 / other

Cost / Value

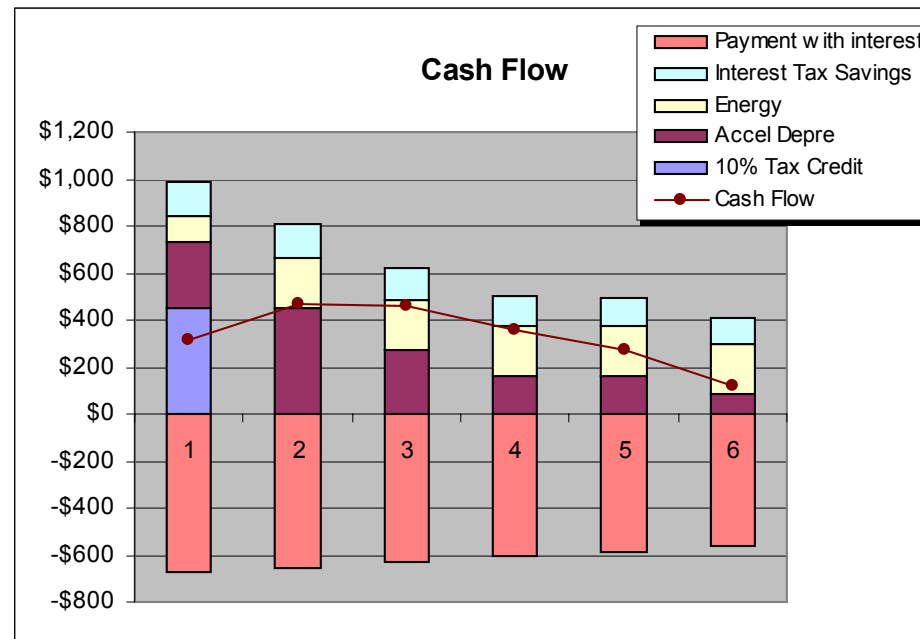


1 kW system, 1,800 kWh / year, \$4,500 / kW

33 % Tax Bracket, \$0.12 / kWh 10 years

Cost / Value

Financing Cash Flow

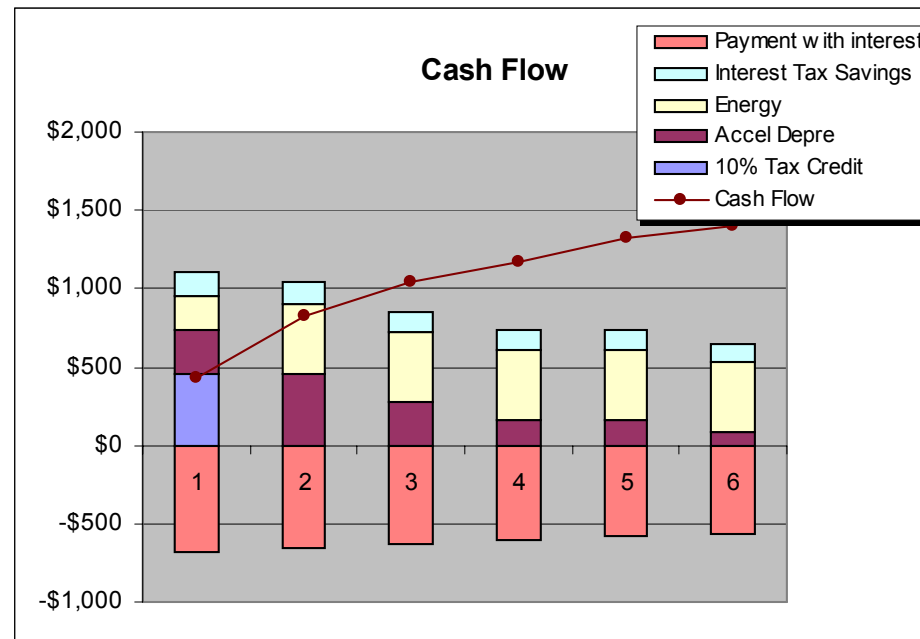


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Cost / Value

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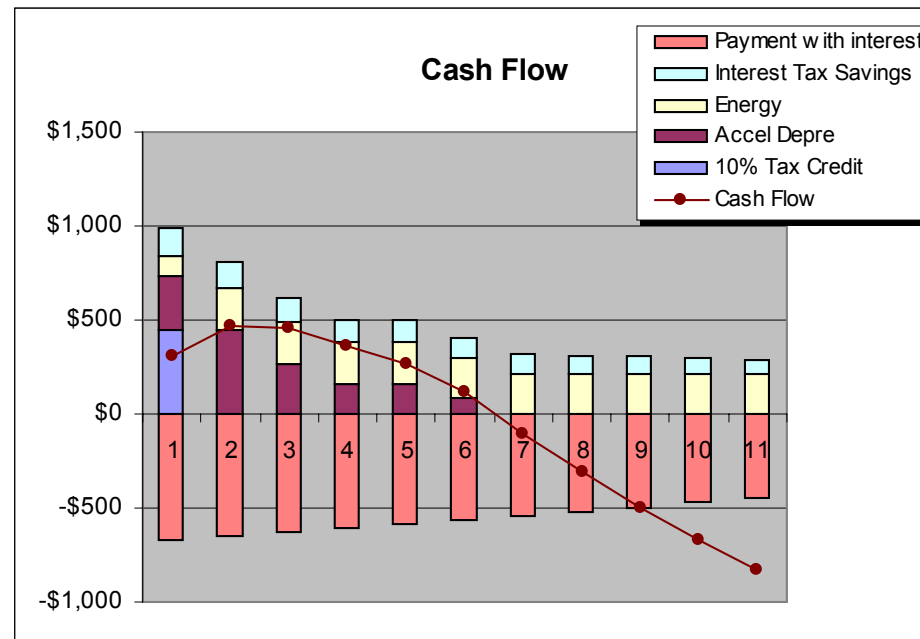


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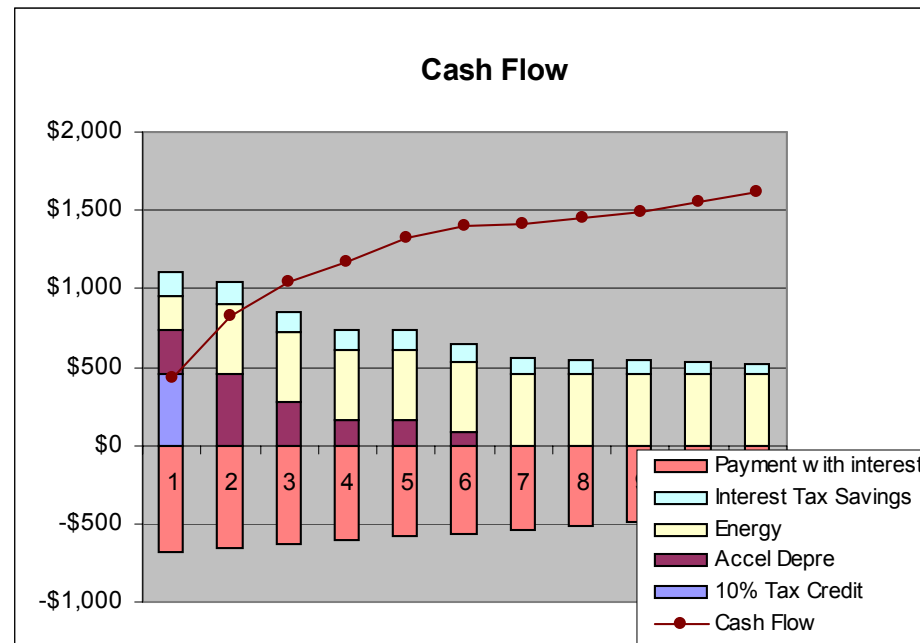


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